

# TESTING TREATMENTS

## Chapter 8, 8.2.3 TESTING TREATMENTS

### Reducing the play of chance in systematic reviews

In Chapter 7 (p91), we explained how the play of chance can be reduced by combining data from similar but separate studies – a process known as ‘meta-analysis’. We used the example of five studies in five different countries organized and funded separately to address a 60-year-old quandary about what blood level of oxygen in prematurely born infants is needed to maximize the likelihood that they will survive with no major disabilities. That example illustrated how this process could be planned *before* the results of the studies were available, but the same process can be used *after* a group of similar studies have been completed.

For example, in 1974 a Swedish doctor conducted a systematic review of studies comparing the results of surgery for breast cancer with or without radiotherapy.<sup>6</sup> He found that, in all of the studies, women were more likely to die in the groups receiving radiotherapy. When all of this evidence was synthesized statistically using meta-analysis, it became clear that this excess mortality was unlikely to reflect the play of chance. Subsequent, more detailed analyses, based on evidence from individual patients, confirmed that the radiotherapy being used during that era did indeed increase mortality.<sup>7</sup> Recognizing this led to the development of safer practices.

### Recognizing vested interests and spin in systematic reviews

What if the reviewers have other interests that might affect the conduct or interpretation of their review? Perhaps the reviewers have received money from the company that made the new treatment being tested. When assessing the evidence for an effect of evening primrose oil on eczema, reviewers who were associated with the manufacturer reached far more enthusiastic conclusions about the treatment than those with no such commercial interest (see Chapter 2, p18-20). However, commercial interests are not alone in leading to biased reviews. We all have prejudices that can do this – researchers, health professionals, and patients alike.

Disappointingly, people with vested interests sometimes exploit biases to make treatments look as if they are better than they really are (see also Chapter 10).<sup>8</sup> This happens when some researchers – usually but not always for commercial reasons –